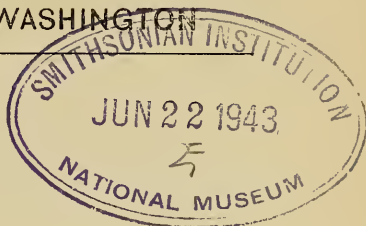


PROCEEDINGS
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A NOTE ON RAFINESQUE'S FLORULA COLUMBICA.

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In connection with the current work on a new Washington-Baltimore flora by the Conference on the District Flora, it may be of historical interest to recall that the first local flora of the District of Columbia was an unpublished and now lost manuscript, *Florula Columbica*, prepared in 1804 by Constantine S. Rafinesque (1783-1840), when he was only about twenty-one years old.

Rafinesque, a brilliant but eccentric genius and naturalist, was ignored by his contemporaries. However, his work, both good and bad, is now becoming more fairly evaluated and better appreciated. One of the greatest splitters in the history of American botany, he described very briefly hundreds of new genera and thousands of new species of plants of eastern United States and added to the confusion of nomenclature. The *Florula Columbica* was written on his first trip to the United States, from April 1802 to December 1804. After spending the next ten years in Sicily, Rafinesque returned to the United States in 1815 and made this country his home until his death in 1840.

Not much information about Rafinesque's lost *Florula Columbica* is available, and its contents are almost completely unknown. However, additional notes and papers of Rafinesque are still being located. The discovery of some very interesting records of Rafinesque after 1815, including manuscripts, notebooks, and letters, was reported by Pennell

(13) in 1940. If found, Rafinesque's *Florula Columbica* would now be of more interest historically than scientifically.

HISTORICAL ACCOUNTS AND BIBLIOGRAPHIES.

The District of Columbia was established by act of Congress in 1790 and became the seat of government of the United States in 1800. In 1805 there appeared in the *Philadelphia Medical and Physical Journal*, edited by Dr. Benjamin Smith Barton, the following brief announcement (1) of six lines under "Miscellaneous Facts and Observations," subheading "Botany:"

"25. Mr. Rafinesque, an Italian gentleman, has put into the hands of the Editor, a MS. catalogue of the plants of the State of Delaware, and of the District of Columbia. This catalogue, with large additions by the Editor, will be published in future parts of this *Journal*."

McAtee (9, p. 16), in his sketch of the natural history of the District of Columbia, stated in a footnote:

"Rafinesque informs us (Rafinesque, C. S. Circular address on Botany and Zoology, followed by the Prospectus of Two Periodical Works; *Annals of Nature and Somiology of North America*. Philadelphia, 1816, page 12) that he prepared a *Florula Columbica*, or catalogue of the plants found in the District of Columbia, 1804, which he gave Dr. B. S. Barton for insertion in the *Philadelphia Medical and Physical Journal*. Dr. Barton acknowledged (op. cit. II, 1806, p. 177) this to be a fact and promised to publish the catalogue with additions—a forecast never fulfilled."

In his very thorough history of botanical activity in the District of Columbia, Ricker (26, p. 489) made only the following brief reference to Rafinesque's manuscript, citing Fitzpatrick (6) as authority:

"Constantine Samuel Rafinesque-Schmaltz prepared the first list of District plants in 1804, the forthcoming publication of which was announced by him in 1805, but for some unknown reason it never appeared."

Asa Gray (7, p. 225) in reviewing at length the botanical publications of Rafinesque shortly after the latter's death, made only the following brief reference to the *Florula Columbica*:

"We do not include the following tracts, which Rafinesque has enumerated among his works, since they have never been published, viz:—*Florula Delawarica*, a Catalogue of plants found in Delaware; and *Florula Columbica*, or a Catalogue of plants found in the District of Columbia; both sent in 1804 to the *Medical and Physical Journal*, edited by Prof. Barton. . . ."

Fitzpatrick (6, p. 67) in his complete bibliography containing 939 published articles by Rafinesque listed as fourth in chronological order and the first botanical title, the following announcement, and added a suggestion about the reason the manuscript was not published:

"4. [RAFINESQUE, C. S. Announcement of a catalogue of the

plants of the State of Delaware and of the District of Columbia.] The Philadelphia Medical and Physical Journal by Benjamin Smith Barton, vol. II, Part I, p. 177. Philadelphia, 1805.

"Rafinesque frequently claimed that the editor, Doctor Barton, suppressed the publication of this catalogue contrary to his promise, and apparently the claim is well founded."

RAFINESQUE'S OWN LISTS OF HIS WRITINGS.

Rafinesque mentioned his manuscript *Florula Columbica* in several lists of his writings but never did publish it. It is not clear from his references whether the *Flora Delawarica* was combined in the same catalog, as Barton indicated, or whether there were two separate articles. Circular address on botany and zoology (20, p. 12), his first publication after his return to the United States, contained a list of all his works and tracts up to that date, 1816. Following a description of four new species of birds from Java, published in 1803, and "Several communications on birds and reptiles," he listed his first two botanical articles:

"*Florula Delawarica*, or a Catalogue of the Plants found in the State of Delaware. This tract and the following were given to Dr. Barton in 1804, for insertion in his *Medical and Physical Journal*, and he promised to do so, volume II, page 177; but never performed his promise.

"*Florula Columbica*, or a Catalogue of the Plants found in the District of Columbia. 1804."

He explained further (20, p. 6) that all his books, manuscripts, drawings, herbarium, etc., "the fruit of twenty years labours, exertions and travels," were lost when his ship from Europe was wrecked off the Connecticut coast as he landed in 1815. It was planned to rewrite several of the lost manuscripts, including "all those relating to the United States." Thus, if Rafinesque kept a copy of the manuscript *Florula Columbica*, it probably was lost in the tragic shipwreck. If he saved a copy, he probably would have published it without further delay, upon his arrival in this country.

In the same publication Rafinesque described his proposed elaborate work, *Somiology of North America*, which would contain descriptions and illustrations of every species of plants and animals in the United States and adjacent countries. It was to be moderately priced and could be purchased in parts or sets, according to the interests of the subscribers. He listed 115 sets, mostly on the flora and fauna of certain localities. Under "Sets of the local floras and faunas," he (20, pp. 34-35) listed as the principal local floras and faunas likely to be asked, those of twelve leading cities, adding, "the Plants and Animals of those noted set are already pretty well known." The two of interest here are:

"95. *F.* [Flora and] *F.* [Fauna] *Baltimoriana*.† Of Baltimore."

"97. *F.* [Flora and] *F.* [Fauna] *Columbica*.† Of the District of Columbia."

Some of Rafinesque's manuscripts and proposed works, such as the *Somiology of North America*, mentioned in his publications apparently

never were written, as he frequently changed his interests before completing certain studies. However, there is a definite, published notice of acceptance by the editor of Rafinesque's manuscript catalogue of the plants of Delaware and the District of Columbia.

Rafinesque's Circular address on botany and zoology, containing the above quotation about his first two botanical articles, was reprinted in English in a German periodical in 1819 (21, p. 58). Likewise, his prospectus of the Somiology of North America was quoted in the following issue (22).

In 1814 Rafinesque (17) published his "Precis des decouvertes et travaux somiologiques," which listed on the covers his published works, without mentioning the *Florula Columbica*. A reprint of the botanical portion of that publication with editorial remarks by N. A. Desvaux (18, pp. 176-177 [276-277]) listed also Rafinesque's botanical publications but not the manuscripts. His book, *Analyse de la nature* (19), published in 1815, contained on the cover pages lists of his works and essays with brief French summaries of some, including:

"2. *Florula Delawarica et Florula Columbica*—Catalogue des Plantes de l'État de Delaware et du district de Columbia dans les États Unis d'Amérique, communiqué au Doct. Barton pour insérer dans le *Journal de Physique de Philadelphie* en 1805."

Again in 1833 Rafinesque in his *Herbarium Rafinesquianum* (23, pp. 33-37), published another list of his works, Chronological index of the principal botanical works and discoveries published by C. S. Rafinesque. On page 34 he listed:

"1804. Floras of Delaware and District of Columbia, my first essay, suppressed by Dr. Benjamin Barton."

NOTES FROM RAFINESQUE'S AUTOBIOGRAPHY.

A few details about Rafinesque's study of the plants of the District of Columbia in 1804 may be inferred from his autobiography (24). The biographies by Call (4) and Fitzpatrick (6) added no details, and the former did not even mention this manuscript flora. The second chapter of the autobiography was devoted to his travels in the United States during the three years 1802 to 1804, when Philadelphia was his home. He wrote that he became gradually acquainted with all the botanists of that period, including Pursh, Barton, Muhlenberg, Bartram, Marshall, the younger Michaux, and others. In the spring of 1804, Rafinesque left his position as a secretary in Philadelphia and, foreseeing that he might have to leave America, gave himself "up to Botany and travels during the whole year." The enthusiasm with which the twenty-year old scientist began his botanical field trips in 1804 is shown in his autobiography (24, p. 18):

"My pedestrian excursions of the last year [1803] had given me a relish for these rambles; I had become convinced that they were both easy, useful and full of pleasure, while they afforded me the means to study every thing at leasure. I never was happier than when alone in the

woods with the blossoms, or resting near a limpid stream or spring, I enjoyed without control the gifts of Flora, and the beauties of nature. I therefore resolved to undertake this year longer journeys before I left America, where I foresaw that I could not remain to advantage, as I often threw my eyes towards Greece and Asia, as another field of exertions and discoveries."

Apparently the *Florula Columbica* and *Florula Delawarica* both were prepared in 1804 from collections and notes made on field trips in that year. During 1804 he walked 1,200 miles on various field trips from Philadelphia into Delaware, Maryland, Virginia, and to the Allegheny Mountains in Pennsylvania. When he returned to Europe at the close of the year, he took with him his herbarium containing 10,000 specimens representing nearly 2,400 species. Carrying letters of introduction on his trips, he was treated with great hospitality. Though offered horses to ride, he preferred to travel alone and on foot by small stages of ten to twenty miles a day. The study of plants of the District of Columbia apparently was confined to a trip to Maryland and Virginia in July and August. From Baltimore he went to Washington. Of his brief notes about Washington, the following quotation (24, p. 21) may be of interest:

"Mr. Law invited me to dwell with him. I was introduced to the President of the United States, Jefferson, for whom Mr. Logan, Senator of Pennsylvania, had given me a letter, and who invited me to visit him at Monticello, where I could not then go. I was also introduced to Gen. Dearborn, Secretary of War, Mr. Madison, Secretary of State and since President, Dr. Thornton, &c. * * *

"I collected many rare and new plants at the falls of the Potowmack. I went to Alexandria to visit the herbal of Hingston, who gave me several rare plants. The heat becoming oppressive I returned to Baltimore and Havre de Grace by a different road."

Brief references to Rafinesque's early botanical studies in the District of Columbia were found also in his *New flora and botany of North America* (25, part 1, p. 7). He summarized his early field trips, as follows:

"I came to North America in 1802, and travelled chiefly on foot until 1804, over New Jersey, Pennsylvania, Delaware, Maryland, and Virginia, from the Alleghany Mountains beyond Easton, to the Potomac beyond Washington and Alexandria. Some of the results of my discoveries in those three years of early travels were published in 1808."

The falls of the Potomac River, at the District of Columbia, were among twenty botanically interesting localities listed by Rafinesque on page 28 as first explored by himself. He wrote:

"Besides these great localities I will add several smaller localities of great botanical interest by the numerous new plants which they have afforded me. Every botanist knows some similar place; but those which I may boast to have discovered or first well explored deserve to be commemorated. They are

"* * * 10. Falls of the river Potomac. * * *"

CONTENT OF THE MANUSCRIPT.

A search of other early publications of Rafinesque, as well as those of Benjamin Smith Barton, was made with the hope of finding some information about the species contained in the lost manuscript. Seven species were found.

Ricker (26, p. 519) in his bibliography of works on taxonomy of plants of the District of Columbia cited two of Rafinesque's publications, in which a total of five species were recorded from Washington. Doubtless the five were also in Rafinesque's manuscript catalog. The first article (15, p. 360) mentioned two new species from this area, *Ceanothus* [*Ceanothus*] *herbaceus* from "near the falls of the Potowmack, between the rocks," and *Euphorbia uniflora* from "between Baltimore and Washington." The second article (16, pp. 339, 342), a list of about 250 naturalized species in the Middle States (New York, Pennsylvania, New Jersey, Delaware, and Maryland), mentioned cities where the species were found, except for the commonest ones. There were a number from Baltimore, Annapolis, and other places in Maryland, but only these three mentioned definitely from Washington: *Agrostema coronarium* [*Agrostemma coronaria*], *Aquilegia vulgaris*, and *Echium vulgare*. Examination of other articles by Rafinesque published before 1815 revealed no more species recorded from Washington.

The identity of *Ceanothus herbaceus* Raf. (Med. Repository 11: 360. 1808) is uncertain. The brief, original description is quoted in full:

"*Ceanothus herbaceus*; stem annual; leaves ovate semi-serrated smooth, flowers in a terminal thyrsus; grows near the falls of the Potowmack, between the rocks."

Evidently he took this low shrub growing in the rocks to be an annual herb. The generic spelling was later corrected by Rafinesque (Jour. de Phys., Chim. 89: 258. 1819). In his Monograph of *Ceanothus* (New Fl. Bot. No. Amer. 3: 54-58. 1836), he gave a more detailed description with the following note on distribution (p. 55):

"Virginia and Carolina near streams, disc. by Hingston in 1800 at the falls of the Potowmack, where found by me again, * * *"

Standley (8, p. 201), in recording *Ceanothus ovatus* Desf. from flats about Little Falls of the Potomac River, remarked that plants from this region were described by Rafinesque as *Ceanothus herbaceus*. The name *Ceanothus ovatus* Desf. (Hist. Arbr. 2: 381, 382. 1809), published a year after Rafinesque's name, was also brief but was clearer and mentioned the differences from *Ceanothus americanus* L. McMinn (*Ceanothus*, 175. 1942) in his monograph of the genus listed *Ceanothus herbaceus* Raf. as a synonym of *Ceanothus americanus* L. Thus it seems best not to adopt the name *Ceanothus herbaceus* Raf., which was almost a *nomen nudum* with a very short and partly erroneous description.

Barton (3) in his unfinished *Flora Virginica* cited one combined manuscript, "*Rafinesque, Florula Delavarica et Columbica, M. S.*," under two species, *Bartonia tenella* Muhl. on page 50, and *Bartonia verna*, a new

combination based on *Centaurella verna* Michx., on page 51. In listing the overlooked new species and new names in Barton's rare work, Pennell (12, p. 28) included: "* (p. 51) *Bartonia verna*—Rafinesque, *Florula Delavarica et Columbica*, M. S." Thus, one new combination of Rafinesque's manuscript, *Bartonia verna* (Michx.) Raf. ex Barton (1812) is correct today and replaces the same combination made a year later by Muhlenberg. As now understood, this species occurs neither in the District of Columbia nor in Delaware, but ranges from southern Virginia to Florida and Louisiana.

It is useless to speculate upon the further contents of Rafinesque's first botanical manuscripts, which obviously were not local floras in the modern sense of the term. In 1809 a second unpublished list of 224 species of plants of the District of Columbia and vicinity was prepared by Dr. Henry Muhlenberg. McAtee (10) reported the discovery of this list in an unpublished letter from Muhlenberg, who made the determinations, to Dr. John Ott, of Georgetown, D. C., one of the collectors. Rafinesque's *Florula Columbica* may have been comparable in size with Muhlenberg's list and the first lists published several years later and cited by Ricker (26, pp. 489-490). These were *Florula Columbiana* by Warden (27, pp. 191-209) in 1816, containing 20 pages and about 142 species, with determinations by José Francisco Correa da Serra, and the *Florula Columbiensis* in 1819 by the Washington Botanical Society (28), with 14 pages and 292 species. Oddly enough, Rafinesque's *Florula Delawarica* had no successors, and no flora of the State of Delaware has ever been published. However, local floras covering New Castle County, one of the State's three counties, have appeared.

BARTON AND RAFINESQUE.

Rafinesque's claim that Dr. Benjamin Smith Barton failed to publish the *Florula Delawarica* and *Florula Columbica* in the Philadelphia Medical and Physical Journal, as he had promised, indicates that from the beginning Rafinesque had difficulty in getting his manuscripts published. Possibly Rafinesque already at that early age was not on the best personal relations with other botanists, such as Dr. Barton, who was professor of materia medica, natural history, and botany in the University of Pennsylvania. Another explanation is that Dr. Barton was preparing a much more detailed flora to include the same areas. In the announcement of Rafinesque's (1) catalog, it was stated that there would be "large additions by the Editor." On the next page was a note by the editor (2) stating that he was preparing for publication his *Prodromus* of a flora of the States of New-York, New-Jersey, Pennsylvania, Delaware, Maryland, and Virginia. Pennell (14, p. 51) noted that Rafinesque's early papers were submitted to scientific journals and that these avenues of publication later became closed to him because of the sketchy nature of the manuscripts and the improbably high proportion of new names.

The lost manuscript may be located later with some of Barton's papers. In reporting upon a journal of a trip by Barton to Virginia in 1802,

McAtee (11) mentioned his search for Rafinesque's manuscript among papers of Benjamin Smith Barton preserved in the library of The Historical Society of Pennsylvania in Philadelphia. Violetta W. Delafield (5) reported in 1936 finding a chest containing papers, proof sheets, letters, drawings, etc., of Barton in the attic of a house which had belonged to Barton's daughter. Eugene L. Delafield, who has been studying this material and working on a bibliography of Barton writes me that there was one letter from Rafinesque to Barton in this collection.

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BIBLIOGRAPHY.

1. Barton, Benjamin Smith. 1805. [Announcement of a catalog of the plants of the State of Delaware, and of the District of Columbia, by Mr. Rafinesque.] *Phila. Med. Phys. Jour.* 2: 177.
2. ————. 1805. [Announcement of prodromus of a flora of the States of New York, New Jersey, Pennsylvania, Delaware, Maryland, and Virginia.] *Phila. Med. Phys. Jour.* 2: 178.
3. ————. 1812. *Flora Virginica: sive plantarum, praecipue indigenarum, Virginiae historia inchoata, iconibus illustrata.* 74 pp. Philadelphiae.
4. Call, Richard Ellsworth. 1895. *The life and writings of Rafinesque.* 227 pp., illus. Louisville, Ky.
5. Delafield, Violetta W. 1936. *The finding of the Barton papers.* *Bartonia* 18: 51.
6. Fitzpatrick, T. J. 1911. *Rafinesque, a sketch of his life with bibliography.* 241 pp., illus. Des Moines.
7. G[ray], A[sa]. 1841. Notice of the botanical writings of the late C. S. Rafinesque. *Amer. Jour. Sci. Arts* 40: 221-241.
8. Hitchcock, A. S., and Standley, Paul C. 1919. *Flora of the District of Columbia and vicinity.* *U. S. Natl. Mus. Contrib. U. S. Natl. Herbarium* 21, 329 pp., illus.
9. McAtee, W. L. 1918. A sketch of the natural history of the District of Columbia together with an indexed edition of the U. S. Geological Survey's 1917 map of Washington and Vicinity. *Biol. Soc. Wash. Bul.* 1, 142 pp., illus. Washington, D. C.
10. ————. 1922. Muhlenberg on plants collected in the District of Columbia region about 1809. *Biol. Soc. Wash. Proc.* 35: 63-71.
11. ————. 1933. *Journal of Benjamin Smith Barton on a visit to Virginia, 1802.* *Castanea* 3: 85-117, illus.
12. Pennell, Francis W. 1926. *The elder Barton—his plant-collection and the mystery of his floras.* *Bartonia* 9: 17-34.
13. ————. 1940. *New light on Rafinesque.* *Chron. Bot.* 6: 125-126.
14. ————. 1942. *Botanical collectors of the Philadelphia local area.* *Bartonia* 21: 38-57.

15. Rafinesque, C. S. 1808. Essential generic and specific characters of some new genusses and species of plants observed in the United States of America, in 1803 and 1804. *Med. Repository* 11 (ser. 2, v. 5): 356-363.
16. ————. 1811. An essay on the exotic plants, mostly European, which have been naturalized, and now grow spontaneously in the Middle States of North America. *Med. Repository* 14 (ser. 3, v. 2): 330-345.
17. ————. 1814. Pécis des découvertes et travaux somiologiques de Mr. C. S. Rafinesque-Schmaltz entre 1800 et 1814. 56 pp. Palerme.
18. ————. 1814. Sur les ouvrages de M. Rafinesque-Schmaltz. *Jour. de Botanique, Appl. Agr., Pharm., Méd. Arts* 4: 268-277.
19. ————. 1815. Analyse de la nature ou tableau de l'univers et des corps organisés. 224 pp. Palerme.
20. ————. 1816. Circular address on botany and zoology; followed by the prospectus of two periodical works; annals of nature and somiology of North America. 36 pp. Philadelphia.
21. ————. 1819. Litterarische Nachrichten. Circular address on botany and zoology, followed by the prospectus of two periodical works; annals of nature and somiology of North America. *Isis [von Oken], Litt. Anz.* 1819: 57-60.
22. ————. 1819. Somiology of North America, including the flora and fauna, or the botany and zoology of the United States of America and the adjacent countries. *Isis [von Oken], Litt. Anz.* 1819: 61-64.
23. ————. 1833. *Herbarium Rafinesquianum*. *Atlantic Journal and Friend of Knowledge, Extra of No. 6*, 80 pp. Philadelphia. (Not seen.)
24. ————. 1836. A life of travels and researches in North America and South Europe. 148 pp. Philadelphia.
25. ————. 1836. New flora and botany of North America. 4 pts. Philadelphia.
26. Ricker, P. L. 1918. A sketch of botanical activity in the District of Columbia and vicinity. *Wash. Acad. Sci. Jour.* 8: 487-498, 516-521.
27. [Warden, David Baillie.] 1816. A chorographical and statistical description of the District of Columbia, the seat of the general government of the United States, with an engraved plan of the District, and view of the capitol. 212 pp., illus. Paris. (*Florula Columbiana*, pp. 191-209.)
28. Washington Botanical Society. 1819. *Florula Columbiensis*: or a list of plants found in the District of Columbia; arranged according to the Linnaean system, under their respective classes and orders, &c. and exhibiting their generally received common names, and time of flowering, during the years 1817 and 1818. 14 pp. Washington.